

Data Quality of the Future

April 19-20, 2023

Presenting To

30th Annual Arizona Immunization Conference
Amanda Lusk | Immunization Data Quality Manager



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Health and Wellness for all Arizonans

Objective



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Data Quality Team



Amanda Lusk



Daba Yague



Julianne Kline



Ugo Nnadi



Lily Bure



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Background

Duplicate Records

Bad Merges

Importance of Quality Data

Resources



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Background

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Data Quality Team Focus

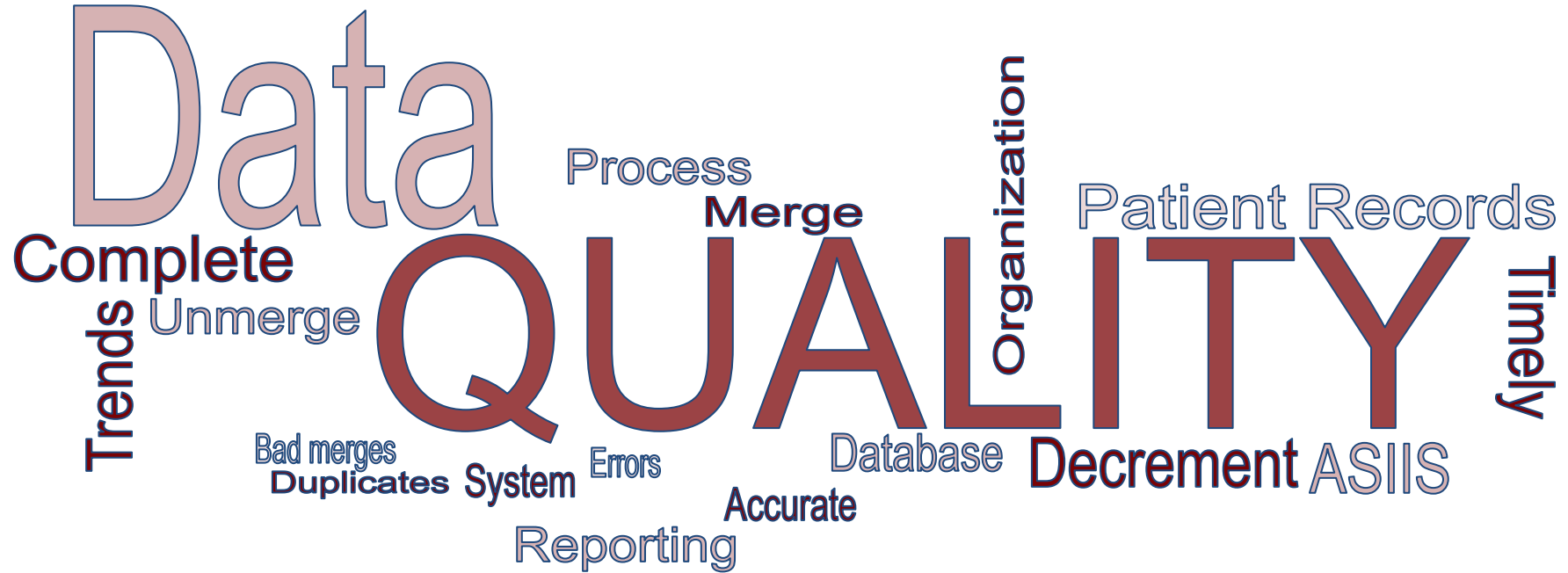
- New team formed in 2021
- Bad merges
- Duplicate records
- Data quality issues with reporting
- Monitoring data
- Decrementing doses
- Adding/deleting/updating vaccines
- MyIR Matching Requests



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Data Quality



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ASIIS, April 2023

Master Patient Records: **11,254,418**

Reserve Patient Records: **49,516,223**

Master Vaccination Records: **122,355,451**

Reserve Vaccination Records: **187,070,934**



CDC Blueprint

Immunization Information Systems (IIS) Data Quality Blueprint

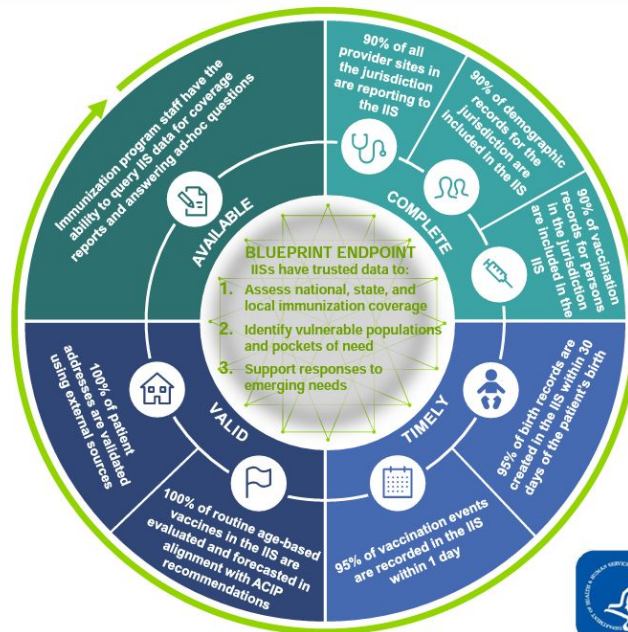
The IIS Data Quality Blueprint is a guide to help immunization programs address and advance data quality within IISs. Its measures focus on improving IIS data throughout the lifespan.

The blueprint focuses on driving IIS data that are:

- **AVAILABLE**
- **COMPLETE**
- **TIMELY**
- **VALID**

Other enabling characteristics (i.e., ACCURATE, CONSISTENT, and UNIQUE) and functional processes (e.g., interoperability) are inherent to high quality IIS data and complement the blueprint data quality characteristics.

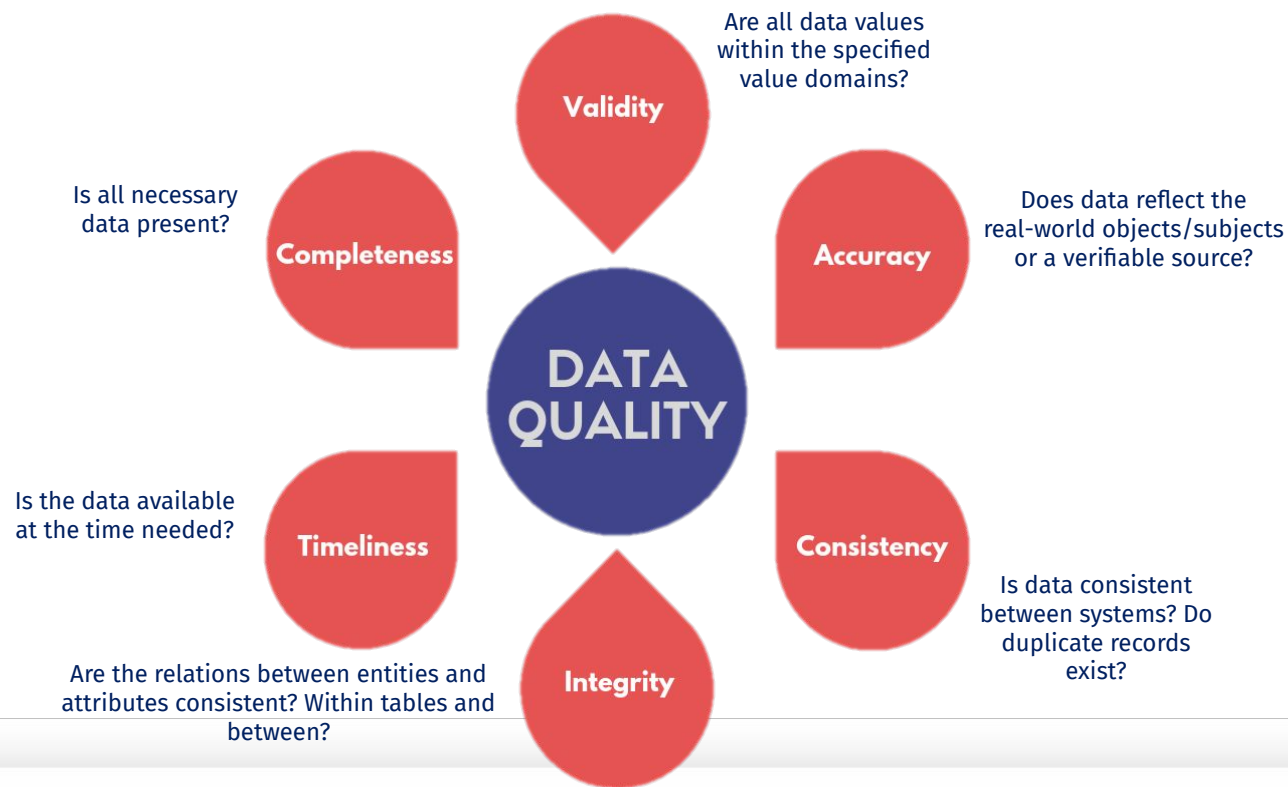
Sample activities for achieving high quality data and the associated recommended measures are found in the [IPOM Sample Activities 2023](#) document.



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Data Quality Dimensions



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Data Quality Dimensions

Golden Standards of Data Quality:

- #1 Validity** – List of rules, requirements and definitions for the data recording process. Specific indicators created that will exclude any possibility of data misinterpretation
- #2 Accuracy** – The records must be accurate and detailed for enabling the well-thought clinical decision making;
- #3 Consistency** – Set of definitions in order to provide a consistent data environment;
- #4 Integrity** – Maintenance and assurance of accuracy and consistency of the data over its entire life-cycle;
- #5 Timeliness** –The fast access to the real-time data influences the service quality and enables the well-thought clinical decision making;
- #6 Completeness** – The records should be entered without gaps in the information and without duplication.



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Activity

- Discuss with those around you what your office has implemented to ensure quality data gets reported to ASIIS
 - If you have not implemented anything, discuss what you could implement



Duplicate Records

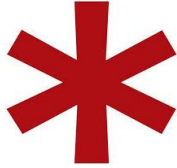


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Patient Demographics

required fields



- First Name
- Last Name
- Birth Date
- Guardian First Name
- Mother's Maiden Name
- Street
- City
- State
- Zip Code
- Sex
- Eligibility Category
- Patient Status

additional fields



- Middle Name
- Birth File
- Patient SSN
- Multiple Birth & Birth Order
- Phone Number / Phone Use Code
- Email
- Guardian Middle & Last Name
- Guardian SSN
- Guardian 2 First & Last Name
- Health Plan Information



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Dirty Data

What can dirty data be:

- Too creative information entry
- Various transpositions and typos
- Misspelling and variations in records formatting and naming



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Dirty Data

- **Incorrect data** – validation rules in PHC-Hub (Patients age should be less than 120 years, and months can range only from 1 to 12)
- **Inaccurate records** – Lot numbers and vaccine types (may be correct but inaccurate). The zip code 85007 of Phoenix is accurate, and the state code of New York is NY, but when you use them together, it will be inaccurate.
- **Inconsistent data** – middle names vs middle initials, nicknames vs. legal names
- **Incomplete records** – missing address, phone number, email etc. This happens when users responsible for data entry, misinterpret the value of some data and avoid to enter it.

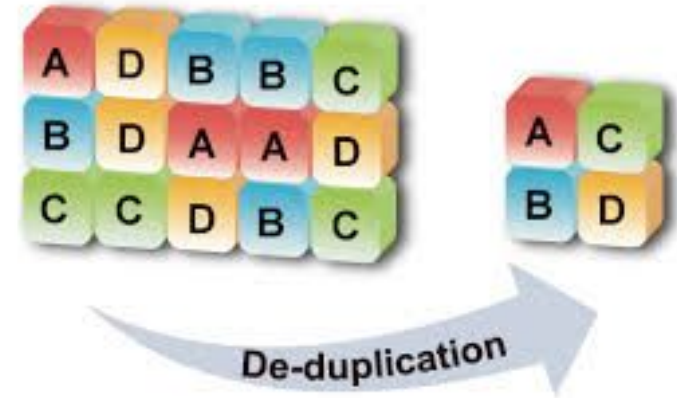


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Duplicate Patients

- The Online Interface forces the user to perform a thorough search for a patient, but duplications are still possible due to the following while performing a search:
 - Variations in the name spelling
 - Address changes
 - Typographical errors
- Overall, any difference between how the patient was originally entered and how it's being searched for, can result in the system not locating a match and thus, a duplicate patient is entered.
- Every time a patient demographics is sent via a HL7 message, the registry compares the incoming information with the one in the system. If it finds more than one record with matching information that vaccination will be sent to Manual Deduplication.



Patient Search

- The "Search" process in ASIIS requires a minimum amount of search criteria to be entered.
- This information is fed into a sophisticated search algorithm that is able to search many different combinations of the information against the database tables.

Patient Search [Click here to use the 'advanced' search](#)

| | | | |
|------------------------|------------|-----------------------------|--|
| First Name or Initial: | | ID: | |
| Last Name or Initial: | | SIIS Patient ID / Bar Code: | |
| Birth Date: | 09/09/2016 | Chart Number: | |

Family and Address Information:

| | | | |
|----------------------|---------------|-----------------------|-----------|
| Guardian First Name: | | Mother's Maiden Name: | |
| Street: | | | |
| City: | | State: | Select... |
| Zip Code: | | Phone Number: | |
| Country: | United States | | |

Note: When searching by First and Last Name, you may use the wildcard character % to replace multiple characters and _ to replace a single character.
☐ Check here if adding a new patient.

[Clear](#) [Search](#)

Patient Search Results

Records Found = 7

Search Criteria: Birth Date

Show 10 entries

| First Name | Middle Name | Last Name | Birth Date | SIIS Patient ID | Grd First Name | Grd Last Name |
|------------|-------------|-----------|------------|-----------------|----------------|---------------|
| SUBJECTRR | | TUSTESTRR | 09/09/2016 | 7765076 | TUSRR | SUBJECTTUSRR |
| SUBJECTSS | | TUSTESTSS | 09/09/2016 | 7765075 | TUSSS | SUBJECTTUSSS |
| SUBJECTTT | | TUSTESTTT | 09/09/2016 | 7765074 | TUSTT | SUBJECTTUSTT |
| SUBJECTUU | | TUSTESTUU | 09/09/2016 | 7765078 | TUSUU | SUBJECTTUSUU |
| SUBJECTVV | | TUSTESTVV | 09/09/2016 | 7765077 | TUSVV | SUBJECTTUSVV |
| SUBJECTWW | | TUSTESTWW | 09/09/2016 | 7765080 | TUSWW | SUBJECTTUSWW |
| SUBJECTXX | | TUSTESTXX | 09/09/2016 | 7765079 | TUSXX | SUBJECTTUSXX |

Showing 1 to 7 of 7 entries



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Patient Search

| Patient Search | | Click here to use the 'simple' search | |
|---|--|---|--|
| Patient (basic information) | | Patient (unique I.D.'s) | |
| First Name: | <input type="text"/> | SSN: | <input type="text"/> |
| Middle Name: | <input type="text"/> | Birth File Number: | <input type="text"/> |
| Last Name: | <input type="text"/> | Medicaid Number: | <input type="text"/> |
| Birth Date: | <input type="text"/> | Chart Number: | <input type="text"/> |
| Birth Order: | <input type="text" value="Select..."/> | WIC ID: | <input type="text"/> |
| | | SIIS Patient ID / Bar Code: | <input type="text"/> |
| Family | | | |
| Guardian First Name: | <input type="text"/> | Mother's Maiden Name: (Last Name Only) | <input type="text"/> |
| Guardian Last Name: | <input type="text"/> | Guardian SSN: | <input type="text"/> |
| Address | | | |
| Street: | <input type="text"/> | | |
| City: | <input type="text"/> | State: | <input type="text" value="Select..."/> |
| Zip Code: | <input type="text"/> | Phone Number: | <input type="text"/> |
| Association: | <input type="text" value="Select..."/> | | |
| <div>Clear Search</div> | | | |
| Advanced Searches: | | <input checked="" type="radio"/> (edit or view only): <input type="radio"/> Add / Edit / View | |
| Simple Searches (edit or view only): | | | |
| Quick Searches | | Other Searches | |
| <input type="radio"/> First Initial, Birth Date | | <input type="radio"/> Guardian | |
| <input type="radio"/> Last Initial, Birth Date | | <input type="radio"/> Birth File Number | |
| <input type="radio"/> Social Security Number | | <input type="radio"/> Medicaid Number | |
| <input type="radio"/> Birth Date | | <input type="radio"/> Chart Number | |
| <input type="radio"/> Phone Number | | <input type="radio"/> WIC ID | |
| | | <input type="radio"/> SIIS Patient ID | |
| | | <input type="radio"/> Association | |
| | | <input type="radio"/> Mother's Maiden Name | |
| | | <input type="radio"/> Guardian First Name, Birth Date | |
| | | First Name / Last Name | |
| | | <input type="radio"/> First Name <input type="radio"/> FN& LN <input type="radio"/> Last Name | |
| | | Select search type for First and Last Name: | |
| | | <input type="radio"/> Exact | |
| | | <input type="radio"/> Like (Use % or _ as wildcard characters) | |
| | | <input checked="" type="radio"/> Phonetic (Search by sound of word) | |



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Adding New Patient

| Patient Search | | Click here to use the 'advanced' search | | | | |
|---|--|---|--|-----------------|----------------|---------------|
| First Name or Initial: | <input type="text" value="SUBJECTAA"/> | ID: | <input type="text"/> | | | |
| Last Name or Initial: | <input type="text" value="AZTESAA"/> | SIIS Patient ID / Bar Code: | <input type="text"/> | | | |
| Birth Date: | <input type="text" value="09/09/2016"/> | Chart Number: | <input type="text"/> | | | |
| Family and Address Information: | | | | | | |
| Guardian First Name: | <input type="text" value="AZGUAA"/> | Mother's Maiden Name: | <input type="text" value="AZIC"/> | | | |
| Street: | <input type="text" value="159 S MAIN ST"/> | | | | | |
| City: | <input type="text" value="PHOENIX"/> | State: | <input type="text" value="AZ"/> x ▾ | | | |
| Zip Code: | <input type="text" value="85007"/> | Phone Number: | <input type="text" value="(480)364-3899"/> | | | |
| Country: | <input type="text" value="United States"/> x ▾ | | | | | |
| <p>Note: When searching by First and Last Name, you may use the wildcard character % to replace multiple characters and _ to replace a single character.</p> <div><input checked="" type="checkbox"/> Check here if adding a new patient. (Required fields are highlighted)</div> <div><input type="button" value="Clear"/> <input type="button" value="Search"/></div> | | | | | | |
| Patient Search Results | | | | | | |
| Records Found = 0 | | Search Criteria: Advanced Search - Add / Edit / View | | | | |
| Show <input type="text" value="10"/> ▾ entries | | Search: <input type="text"/> | | | | |
| First Name | Middle Name | Last Name | Birth Date | SIIS Patient ID | Grd First Name | Grd Last Name |
| No data available in table | | | | | | |
| Showing 0 to 0 of 0 entries | | | | | | |
| <p>Before adding, check to make sure the patient you want to add is not listed above or not pending manual review.</p> <input type="button" value="Add Patient"/> | | | | | | |



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Adding New Patient

Patient Search [Click here to use the 'advanced' search](#)

| | | | |
|------------------------|------------------|-----------------------------|--|
| First Name or Initial: | <u>SUBJECTEE</u> | WIC ID: | |
| Last Name or Initial: | TUSTESTEE | SIIS Patient ID / Bar Code: | |
| Birth Date: | 03/03/2016 | Chart Number: | |

Family and Address Information:

| | | | |
|----------------------|-------------|-----------------------|---------------|
| Guardian First Name: | TUSEE | Mother's Maiden Name: | TTEST |
| Street: | 123 Main St | | |
| City: | PHOENIX | State: | AZ x |
| Zip Code: | 85007 | Phone Number: | (602)364-3619 |
| Country: | | | |

Note: When searching by First Name, Last Name, or Birth Date, you must enter the full name or date. Use * for wildcards and _ to replace a single character.
☒ Check here if adding a new patient. **(Required fields are highlighted)**

test-asiis.azdhs.gov says:
This record already exists in the database. An exact match has been found.

OK

Patient Search Results
Records Found = 1

Show 10 entries Search:

| First Name | Middle Name | Last Name | Birth Date | SIIS Patient ID | Grd First Name | Grd Last Name |
|------------|-------------|-----------|------------|-----------------|----------------|---------------|
| SUBJECTEE | | TUSTESTEE | 03/03/2016 | 7500799 | TUSEE | SUBJECTTUSEE |

Showing 1 to 1 of 1 entries



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Reporting Duplicate Patients

Patient Search [Click here to use the 'advanced' search](#)

First Name or Initial:

ID:

Last Name or Initial:

SIS Patient ID / Bar Code:

Birth Date:

Chart Number:

Family and Address Information:

Guardian First Name:

Mother's Maiden Name:

Street:

City:

State:

Zip Code:

Phone Number:

Country:

Note: When searching by First and Last Name, you may use the wildcard character % to replace multiple characters and _ to replace a single character.

☐ Check here if adding a new patient.

Clear Search

Patient Search Results

Records Found = 8 Search Criteria: Birth Date

Show entries

Search:

| First Name | Middle Name | Last Name | Birth Date | SIS Patient ID | Grd First Name | Grd Last Name |
|------------|-------------|-----------|------------|----------------|----------------|---------------|
| SUBJECTAA | AA | AZTESAA | 09/09/2016 | 7768558 | AZGUAA | AZTESAA |
| SUBJECTRR | | TUSTESTRR | 09/09/2016 | 7765076 | TUSR | SUBJECTTUSRR |
| SUBJECTSS | | TUSTESTSS | 09/09/2016 | 7765075 | TUSS | SUBJECTTUSSS |
| SUBJECTTT | | TUSTESTTT | 09/09/2016 | 7765074 | TUSTT | SUBJECTTUSTT |
| SUBJECTUU | | TUSTESTUU | 09/09/2016 | 7765078 | TUSUU | SUBJECTTUSUU |
| SUBJECTVV | | TUSTESTVV | 09/09/2016 | 7765077 | TUSVV | SUBJECTTUSVV |
| SUBJECTWW | | TUSTESTWW | 09/09/2016 | 7765080 | TUSWW | SUBJECTTUSWW |
| SUBJECTXX | | TUSTESTXX | 09/09/2016 | 7765079 | TUSXX | SUBJECTTUSXX |

Showing 1 to 8 of 8 entries

Report Duplicates



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Reporting Duplicate Patients

Report Duplicate Patients

Reason for deduplication:

Please select two or more records you want to deduplicate

| Select | First Name | Middle Name | Last Name | Grd Last Name |
|--------------------------|------------|-------------|-----------|---------------|
| <input type="checkbox"/> | SUBJECTAA | AA | | AZTESAA |
| <input type="checkbox"/> | SUBJECTRR | | | SUBJECTUSRR |
| <input type="checkbox"/> | SUBJECTSS | | | SUBJECTUSSS |
| <input type="checkbox"/> | SUBJECTTT | | | SUBJECTUSTT |
| <input type="checkbox"/> | SUBJECTUU | | | SUBJECTUSUU |
| <input type="checkbox"/> | SUBJECTVV | | | SUBJECTUSVV |
| <input type="checkbox"/> | SUBJECTWW | | | SUBJECTUSWW |
| <input type="checkbox"/> | SUBJECTXX | | | SUBJECTUSXX |

--select--

--select--

DUPLICATE GUARDIAN INFORMATION

FOUND PLEASE REVIEW

HARD COPY REVIEWED

INCOMING RECORD CONTAINS CORRECTED DATA

OTHER PLEASE SPECIFY

PARENT COPY MATCHES IMMUNIZATIONS IN REGISTRY

PATIENTS SHARE MANY IMMUNIZATION DATES

PREVIOUS IMMUNIZATION PROVIDERS MATCH ON DEMOGRAPHIC SCREEN

SIGNIFICANT SHARED DEMOGRAPHIC DATA MORE THAN NAME AND DOB

| | | | |
|-----------|------------|---------|-------|
| TUSTESTWW | 09/09/2016 | 7765080 | TUSWW |
| TUSTESTXX | 09/09/2016 | 7765079 | TUSXX |

Back

Report Duplicates



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Reporting Duplicate Patients

Please select the master record to be merged into:

| Patient Set Merge | | |
|----------------------|-----------------------|---------------|
| MS ID | Master Patient: | |
| 7500004 | <input type="radio"/> | 7500003 |
| First Name | SUBJECTGG | SUBJECTHH |
| Middle Name | | ROBERT |
| Last Name | TUSTESTGG | TUSTESTHH |
| Suffix | | JR |
| Birth Date | 03/03/2016 | 03/03/2016 |
| Sex | MALE | MALE |
| Medicaid Number | | |
| Birth File | | |
| Race | | Asian |
| Language | | English |
| Mother Maiden Name | | ELISA |
| Guardian First Name | | JOTEST |
| Guardian Middle Name | | MARY |
| Guardian Last Name | | NUMBERONE |
| Street Address | | 321 S MAIN ST |
| City | | PHOENIX |
| State | | ARIZONA |
| Zip Code | | 85009 |
| Phone | | |
| Email | | |
| Health Plan | | |
| Health Plan ID | | |
| HP Enroll Date | | |
| Birth Order | | |
| Birth Count | | |

Reason for deduplication:
FOUND WHEN SEARCHING - PLEASE
REVIEW FOR DUPLICATE

FOUND PLEASE REVIEW

Back Merge

Place for comments



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Manual Deduplication

- The registry is designed to minimize the number of duplicate patient and vaccination records within it.
- Manual De-duplication is a "manual" process when an administrator visually reviews both the incoming patient record and the record residing in the "Reserve" table and makes a decision. This decision is either to create a new patient record or merge the patient records.

The number of records coming in daily for “Manual Deduplication” is enormous!



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Manual Deduplication

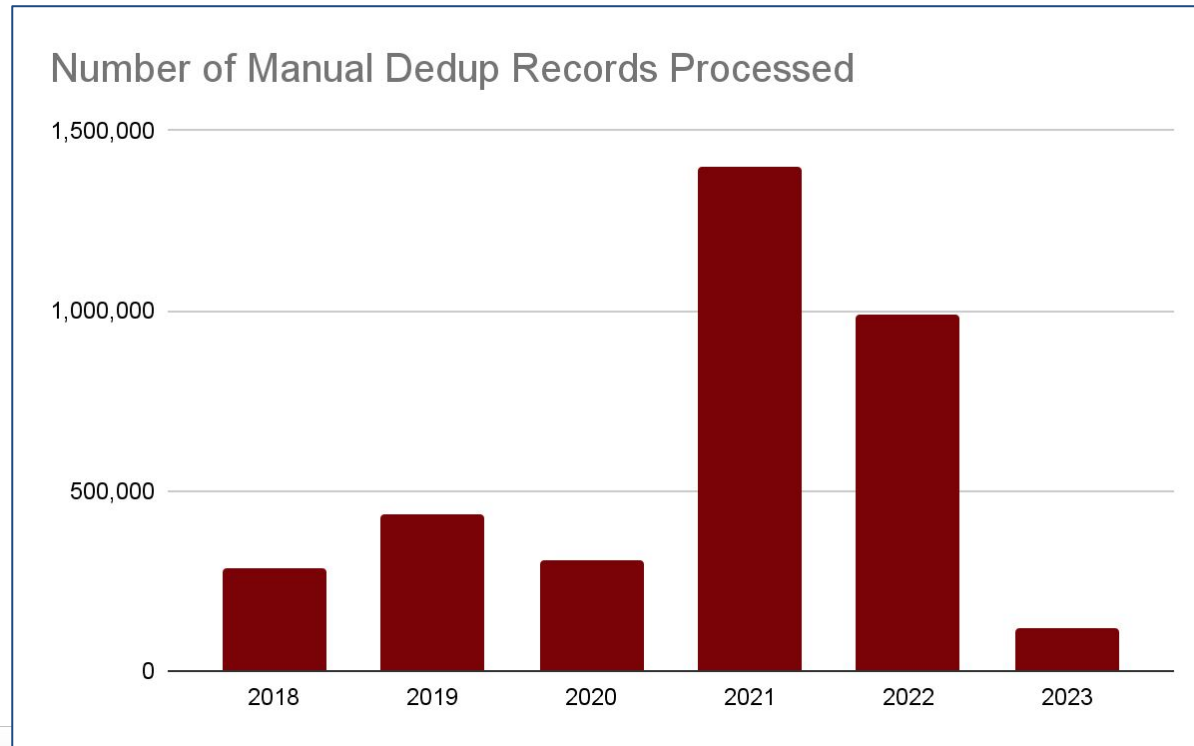
| Patient | First | Middle | Last | DOB | Address 1 Line 1 | Address 1 Line 2 | City 1 | State 1 | ZIP 1 | Phone | Result |
|-----------|--------|--------|---------|-----------|---------------------|------------------|---------------|---------|-------|--------------|----------|
| Patient A | CAROLL | L | LABELLE | 25-Feb-46 | 999 Harrison Avenue | | Boston | MA | 02109 | 407-555-2003 | Possible |
| Patient B | CAROLL | L | LABELLE | 25-Mar-46 | 999 Harrison Avenue | | Boston | MA | 02109 | 407-555-2003 | Possible |
| Patient A | CAROLL | L | LABELLE | 25-Feb-46 | 999 Harrison Avenue | | Boston | MA | 02109 | 407-555-2003 | Possible |
| Patient B | CAROL | L | LABELLE | 25-Feb-46 | 999 Harrison Avenue | | Boston | MA | 02109 | 407-555-2003 | Possible |
| Patient A | CAROLL | L | LABELLE | 25-Feb-46 | 999 Harrison Avenue | | Boston | MA | 02109 | 407-555-2003 | Possible |
| Patient B | CAROLL | L | LABELLE | 25-Feb-46 | 999 Harrison Avenue | | Boston | MA | 02109 | 407-555-2003 | Possible |
| Patient A | CAROLL | L | LABELLE | 25-Feb-46 | 999 Harrison Avenue | | Boston | MA | 02109 | 407-555-2003 | Possible |
| Patient B | CAROLL | | LABELLE | 25-Feb-46 | 999 Harrison Avenue | | Boston | MA | 02109 | 407-555-2003 | Possible |
| Patient A | CAROLL | L | LABELLE | 25-Feb-46 | 999 Harrison Avenue | | Boston | MA | 02109 | 407-555-2003 | Possible |
| Patient B | CAROLL | Z | LABELLE | 25-Feb-46 | 999 Harrison Avenue | | Boston | MA | 02109 | 407-555-2003 | Possible |
| Patient A | CAROLL | L | LABELLE | 25-Feb-46 | 999 Harrison Avenue | | Boston | MA | 02109 | 407-555-2003 | Possible |
| Patient B | CAROLL | L | LABELLE | 25-Feb-46 | 999HarrisonAvenue | | Boston | MA | 02109 | 407-555-2003 | Possible |
| Patient A | CAROLL | L | LABELLE | 25-Feb-46 | 999 Harrison Avenue | | Boston | MA | 02109 | 407-555-2003 | Possible |
| Patient B | CAROLL | L | LABELLE | 25-Feb-46 | 999 Harrison Ave | | Boston | MA | 02109 | 407-555-2003 | Possible |
| Patient A | CAROLL | L | LABELLE | 25-Feb-46 | 999 Harrison Avenue | | Boston | MA | 02109 | 407-555-2003 | Possible |
| Patient B | CAROLL | L | LABELLE | 25-Feb-46 | 999 Harrison Avenue | Apt J | Boston | MA | 02109 | 407-555-2003 | Possible |
| Patient A | CAROLL | L | LABELLE | 25-Feb-46 | 999 Harrison Avenue | | Boston | MA | 02109 | 407-555-2003 | Possible |
| Patient B | CAROLL | L | LABELLE | 25-Feb-46 | 999 Harrison Avenue | | Jamaica Plain | MA | 02109 | 407-555-2003 | Possible |
| Patient A | CAROLL | L | LABELLE | 25-Feb-46 | 999 Harrison Avenue | | Boston | MA | 02109 | 407-555-2003 | Possible |
| Patient B | CAROLL | L | LABELLE | 25-Feb-46 | 999 Harrison Avenue | | Boston | AZ | 02109 | 407-555-2003 | Possible |



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Manual Deduplication - Over the years

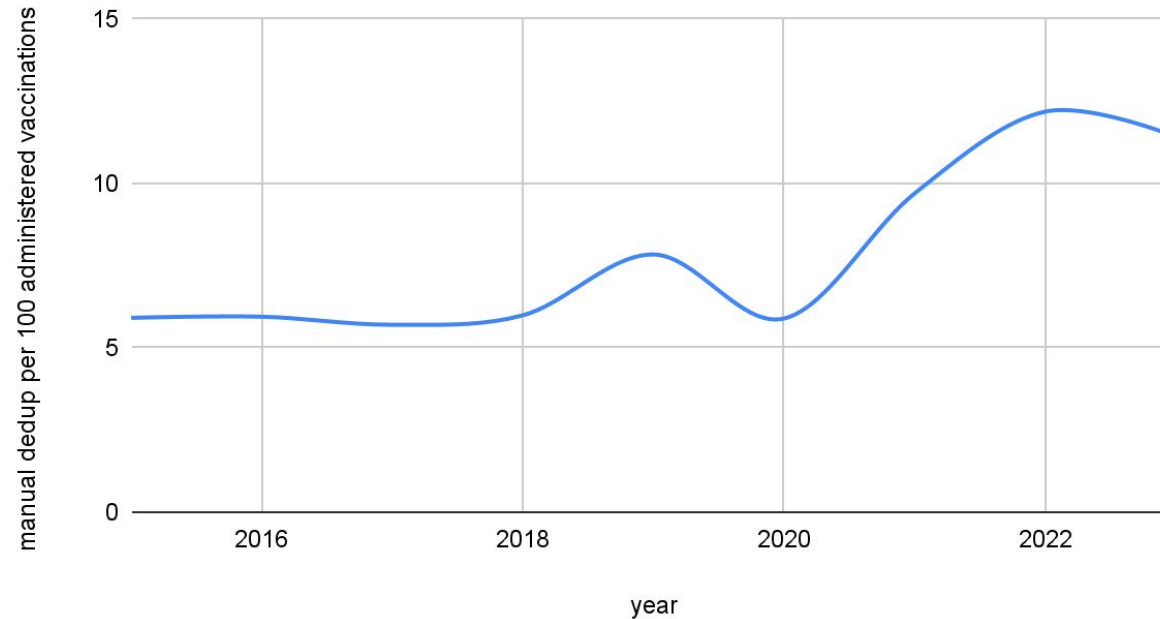


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Manual Deduplication - Over the years

manual dedup per 100 administered vaccinations vs. year



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Manual Deduplication

Question 1:

Is it possible that two different people have the same First Name and Birth Date?



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Manual Deduplication

Answer 1:
Yes.



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Manual Deduplication

Question 2:

Is it possible for two patients to have the same social security number but all the other fields do not match?



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Answer 2:

No. More than likely there is a typographical error on the social security number.



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Question 3:

Is it possible to have the same first name, middle initial, last name, birthday, and address but have different social security numbers?



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Answer 3:

No. This is probably the same person, but there is a possibility the social security number was entered incorrectly.



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Manual Deduplication

Other factors we consider:

- Last names can change due to marriage, divorce, custody changes, etc.
- Addresses change when patients move.
- Twins will have all fields in common except for first names and possibly middle names.
- Sons are named the same as their fathers where the record difference will only be seen in the birth date.



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Manual Deduplication

Foster and shelter homes can have several children located at the same address, so addresses and phone numbers are not significant for the record comparison.

We look for swapped entries; such as the First Name being placed in the Last Name field, or Middle Name in the First Name field, etc.



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BABY BOY

BABY GIRL



Baby Record Examples

| Record Info | | | |
|-----------------------------------|--------------------------|--|------------------------|
| SIIS Patient ID | | 2177003 | |
| Organization Owner | | 468 - MARYVALE HOSPITAL MEDICAL CENTER | |
| Facility Owner | | - | |
| Entry Date | 03/10/2003 08:10:42 AM | Last Update | 03/20/2023 12:00:00 AM |
| Entered By | | Last Updated By | AMANDA LUSK |
| Patient Status | | | |
| State Level | Active | Organization Level | Inactive |
| County Level | Active (Maricopa) | | |
| Patient | | | |
| First Name | BABY | Race | |
| Middle Name | | Ethnicity | |
| Last Name | BOY LUSK | Language | |
| Suffix | | | |
| Birth Date | 02/01/2023 | Medicaid # | |
| Birth File # | | Multi Birth Indicator | N |
| | | Birth Order | |
| Age | 6 weeks, 1 months, 0 yrs | Military | |
| Reminder/Recall Publicity Code | | Recall Attempts | 0 |
| Sex | MALE | Nationality | |
| Mother Maiden Nm | | Passport # | |
| VFC status | Ineligible | Visa # | |
| | | Vaccine Supply | PRIVATE |
| - Primary Address | | | |
| Address 1 | 150 N 18TH AVE | Address 2 | |
| City | PHOENIX | State | AZ |
| Zip Code | 85007 | | |
| Email | Babylusk@gmail.com | | |
| Country | United States | County/Parish | MARICOPA |
| - Patient Phone Number(s) | | | |
| Phone Number | Extension | Phone Use Code | Equipment Type |
| (480)787-1494 | | Primary residence number | Telephone |
| | | | Primary |
| | | | Y |
| - Family & Contact | | | |
| Guardian 1 First | AMANDA | Guardian 2 First | |
| Guardian 1 Middle | | Guardian 2 Middle | |
| Guardian 1 Last | LUSK | Guardian 2 Last | |

| Record Info | | | |
|-----------------------------------|---------------------------------|---|------------------------|
| SIIS Patient ID | | 8368156 | |
| Organization Owner | | 60086 - BANNER HEALTH HOSPITALS - CORPORATE | |
| Facility Owner | | 69198 - BANNER UNIVERSITY MEDICAL CENTER TUCSON | |
| Entry Date | 09/09/2017 03:08:31 PM | Last Update | 03/20/2023 12:00:00 AM |
| Entered By | UNIVERSITY OF AZ HL7 PRODUCTION | Last Updated By | AMANDA LUSK |
| Patient Status | | | |
| State Level | Active | Organization Level | Inactive |
| County Level | Active (Maricopa) | | |
| Patient | | | |
| First Name | LEO | Race | |
| Middle Name | | Ethnicity | |
| Last Name | LUSK | Language | |
| Suffix | | | |
| Birth Date | 02/01/2023 | Medicaid # | |
| Birth File # | | Multi Birth Indicator | N |
| | | Birth Order | |
| Age | 6 weeks, 1 months, 0 yrs | Military | |
| Reminder/Recall Publicity Code | | Recall Attempts | 0 |
| Sex | MALE | Nationality | |
| Mother Maiden Nm | | Passport # | |
| VFC status | Ineligible | Visa # | |
| | | Vaccine Supply | PRIVATE |
| - Primary Address | | | |
| Address 1 | 150 N 18TH AVE | Address 2 | |
| City | PHOENIX | State | AZ |
| Zip Code | 85007 | | |
| Email | Babylusk@gmail.com | | |
| Country | United States | County/Parish | MARICOPA |
| - Patient Phone Number(s) | | | |
| Phone Number | Extension | Phone Use Code | Equipment Type |
| (480)787-1494 | | Primary residence number | Telephone |
| | | | Primary |
| | | | Y |
| - Family & Contact | | | |
| Guardian 1 First | AMANDA | Guardian 2 First | |
| Guardian 1 Middle | | Guardian 2 Middle | |
| Guardian 1 Last | LUSK | Guardian 2 Last | |

Bad Merges

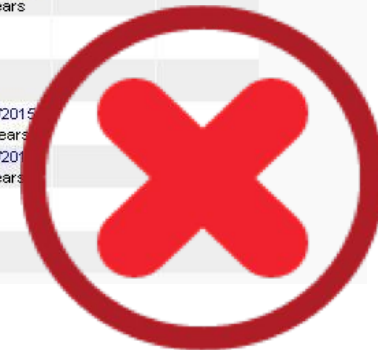


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Separating Bad Merges

| Vaccination Summary | | | | | | | | | |
|--|---------------------------|-------------------------|-------------------------|-------------------------|------------------------|------------------------|-----------------------|------------------------|------------------------|
| Vaccinations outside the ACIP schedule are marked with an 'X'. | | | | | | | | | |
| Vaccine | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| DTaP/DTP/Td | 01/10/2001 10 weeks | 03/14/2001 4 months | 05/11/2001 6 months | 02/12/2002 15 months | 11/04/2005 5 years | 01/04/2010 9 years | 04/19/2010 9 years | 06/14/2010 9 years | 02/17/2015 14 years |
| Tdap | 11/11/2010 10 years | | | | | | | | |
| OPV/IPV | 01/10/2001 10 weeks | 03/14/2001 4 months | 05/11/2001 6 months | 11/04/2005 5 years | 01/04/2010 9 years | 04/19/2010 9 years | 06/14/2010 9 years | 02/17/2015 14 years | |
| MMR | X 11/06/2001 12 months | 11/04/2005 5 years | 02/17/2015 14 years | | | | | | |
| Hib | 01/10/2001 10 weeks | 03/14/2001 4 months | 02/12/2002 15 months | | | | | | |
| Hep A | 11/01/2002 24 months | 11/03/2003 3 years | | | | | | | |
| Hep B - 3 Dose | 01/10/2001 10 weeks | 03/14/2001 4 months | 08/28/2001 9 months | 01/04/2010 9 years | 04/19/2010 9 years | 06/14/2010 9 years | | | |
| Varicella | X 11/06/2001 12 months | 11/05/2008 8 years | 02/17/2015 14 years | | | | | | |
| Rotavirus | X 01/04/2010 9 years | X 04/19/2010 9 years | X 06/14/2010 9 years | | | | | | |
| Influenza | 11/05/2008 8 years | 10/29/2009 8 years | 10/04/2010 9 years | 11/07/2011 11 years | 09/18/2013 12 years | 01/02/2015 14 years | | | |
| Pneumo (PCV) | 01/10/2001 10 weeks | 03/14/2001 4 months | 05/11/2001 6 months | 01/04/2010 9 years | 04/19/2010 9 years | 06/14/2010 9 years | | | |
| Meningococcal | 11/07/2011 11 years | | | | | | | | |
| Novel Influenza H1N1-09 | 10/29/2009 8 years | | | | | | | | |



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Data Quality - Demographics

Entering current and accurate patient demographics helps ASIIS and all of us to find the correct patient and avoid creating duplicate patients and helps to prevent bad merges.



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Data Quality - Demographics

| Patient Demographic Master View | | | |
|----------------------------------|--|--------------------------|------------------------|
| Record Info | | | |
| SIS Patient ID | 7784747 | | |
| Organization Owner | 60033 - ST. ELIZABETH'S HEALTH CENTER | | |
| Facility Owner | 53677 - ST. ELIZABETH'S HEALTH CENTER | | |
| Entry Date | 08/01/2016 02:18:51 PM | Last Update | 03/17/2023 12:00:00 AM |
| Entered By | ST. ELIZABETH'S HEALTH CENTER HLT UPLOAD | Last Updated By | AMANDA LUSK |
| Patient Status | | | |
| State Level | Active | Organization Level | Inactive |
| County Level | Active (Maricopa) | | |
| Patient | | | |
| First Name | TEST | Race | White |
| Middle Name | A | Ethnicity | Hispanic or Latino |
| Last Name | TEST | Language | English |
| Suffix | | | |
| Birth Date | 10/29/1958 | Medicaid # | |
| Birth File # | | Multi Birth Indicator | Y |
| | | Birth Order | 2 |
| Age | 64 yrs | Military | |
| Reminder/Recall | | Recall Attempts | 0 |
| Publicity Code | | | |
| Sex | FEMALE | Nationality | |
| Mother Maiden Nm | TEST | Passport # | |
| VFC status | Ineligible | Visa # | |
| | | Vaccine Supply | PRIVATE |
| - Primary Address | | | |
| Address 1 | 150 N 18TH AVE | | Address 2 |
| City | PHOENIX | | State |
| Zip Code | 85007 | | AZ |
| Email | testtest@test.com | | |
| Country | United States | | County/Parish |
| | | | MARICOPA |
| - Patient Phone Number(s) | | | |
| Phone Number | Extension | Phone Use Code | Equipment Type |
| (602)555-0000 | | Primary residence number | Primary |
| | | | Y |
| - Family & Contact | | | |
| Guardian 1 First | TEST MOM | | |
| Guardian 1 Middle | TEST MIDDLE | | |
| Guardian 1 Last | TEST LAST | | |
| Guardian 2 First | | | |
| Guardian 2 Last | | | |
| Phone Number | Phone Use Code | Equipment Type | |
| | Primary residence number | Cellular phone | |
| Alias | | | |
| Secondary Patient Demographics | | | |
| School | | | |
| Primary Insurance | | | |
| Medical Home | | | |
| Birth & Death | | | |
| Patient Specific Reports | | | |



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Importance of Quality Data

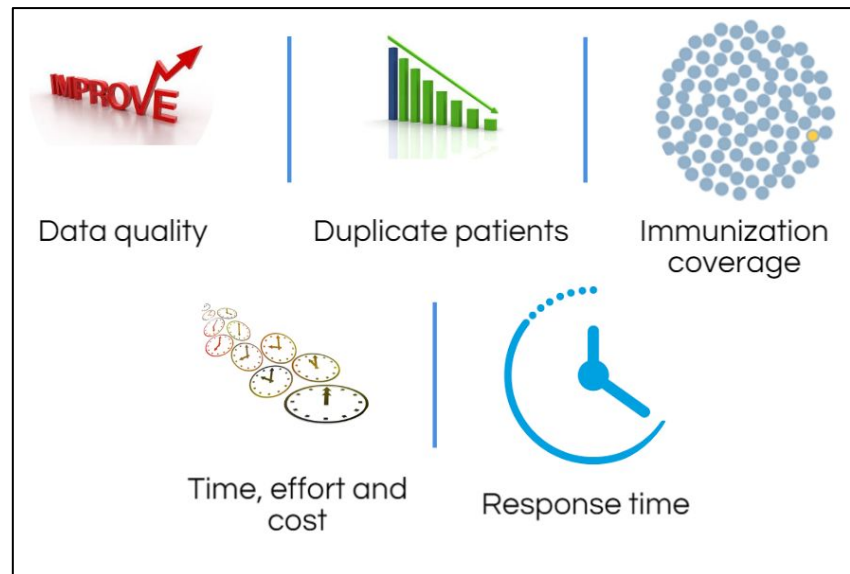


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How is this all tied together?

1. Improving the data quality of patient records leads to:
 - a. Reducing the number of duplicate patients in ASIIS and helps to prevent bad merges
 - b. Reducing the number of duplicate patients in ASIIS which will improve providers coverage rates
 - c. Reduces labor time and effort in everyday work
 - i. Providers finding the patients, reviewing reports.
 - ii. State deduplication of the records, reviewing patient data quality
 - d. Reduces response time when providing quality services to our clients - the patients



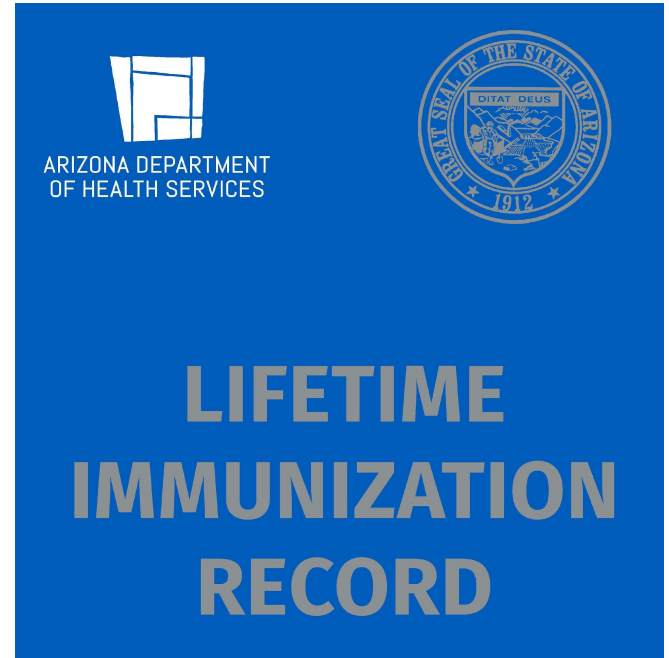
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Benefits of Good Data

Ultimately:

- Prevents invalid or outside of ACIP recommendations (Advisory Committee on Immunization Practices)
- Accurate vaccine forecasting
- Preventing unnecessary vaccinations
- Accurate immunization records



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Resources



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Resources Available

- [Tips for Ensuring ASIIS COVID-19 Data Quality](#)
- [Ensure Your Office Submits Quality Data to ASIIS](#)
- [Use Vaccine Information on the Box](#)
- [COVID-19 Vaccine Presentations Available to Order in ASIIS](#)
- [List of Vaccine Names, Best ASIIS Selection and CPT/CVX Codes](#)



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Example

Ensure Your Office Submits Quality Data to ASIIS

High-quality data is accurate, complete, and timely:

- **Accurate:** ASIIS data accurately reflects what occurred in a clinical visit
- **Complete:** Full patient information is captured in ASIIS. The more patient information ASIIS has, the higher the chances that incoming data will be merged with the correct patient
- **Timely:** Timely submission helps ensure that the data is in ASIIS by the next doctor visit

High quality data benefits your office and patients:



Supports more accurate vaccine forecasting to decrease missed opportunities and over-vaccination



Ensures the patients immunization record is portable and follows the patient as they see other providers

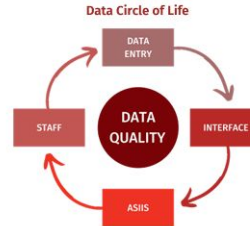


Helps schools and childcare facilities generate accurate and complete records required for entry



Supports the ability to assess accurate coverage rates and address gaps

Take these steps to ensure high data quality with your patient records:



High data quality is maintained by ensuring data being entered/reported into ASIIS is accurate and it takes the cooperation between all areas to make sure the information is accurate, complete, and timely.

602-364-3899
ASIIS_Data_Quality@azdhs.gov
<https://azdhs.gov/x/sis>



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Example

Tips for Ensuring ASIIS COVID-19 Data Quality



Receive doses into ASIIS inventory before administering to patient

- When shipment arrives, open immediately
- Compare packing slip with contents in box and ASIIS order
- If you administered doses before receiving them into your ASIIS inventory, contact the AIPO immediately
- Check lot number
- Check manufacturer
- Check expiration date
 - ASIIS may have a placeholder expiration date of 12/31/2069, which must be changed to the correct expiration date
 - Pfizer expiration date - on vial and tray
 - [Moderna expiration date](#) - QR code or look up lot number
 - [Janssen expiration date](#) - QR code or look up lot number
- Select funding source "PAN" for all COVID-19 vaccines
- Do not reject doses



Ensure lot number, expiration date, manufacturer, funding source, NDC/CSV/CPT in EMR are accurate

- [Arizona specific HL7 reporting information](#)
- CDC [CSV/CPT code resources](#)
- Allow 24 hours for HL7 data transfer



Use [Dose Accountability Log](#) and/or [Lot Tracking Log](#) to help keep track of doses administered

- Go to azdhs.gov/vfc, then "Operations Guide and Resources"



Ensure Patient Data Accuracy

- Check patient's name (use legal name, not nicknames)
- Check date of birth
- Check address



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Patient Data Quality Detail Report in ASIIS

Quality

Patient Data Quality Detail

Vaccination Data Quality

Vaccination Data Quality Detail

Schedule

Patient Data Quality Detail Report

Display By

☒ Last Update Date Range

From: 03/01/2023 Through: 03/14/2023

☐ Birth Date Range

From: Through:

☒ Organization

0000_ADHS INTERNAL USE (1066)

☐ Organization Group

--select--

☐ Do Not Limit

☐ Facility

--select--

☐ Facility Group

--select--

☒ Do Not Limit

☐ PIN

--select--

☐ District / Region

☐ Missing Variables

Street Address1
City
State
Zip Code
Phone

☐ Exclude Inactive Patients (Organization Status)

Cancel

Reset

Create Report

This report lists the individual patient names and birthdates for patients with missing data elements so that these patients can be reviewed and fixed.



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Patient Data Quality Detail Report in ASIIS

Select one or more fields to be evaluated to see if they are missing or not

Patient Data Quality Detail Report

Display By

| | |
|--|---|
| <input checked="" type="checkbox"/> Last Update Date Range | From: 03/01/2023 Through: 03/14/2023 |
| <input type="checkbox"/> Birth Date Range | From: Through: |
| <input checked="" type="radio"/> Organization | 0000_ADHS INTERNAL USE (1066) |
| <input type="radio"/> Organization Group | --select-- |
| <input type="radio"/> Do Not Limit | |
| <input type="radio"/> Facility | --select-- |
| <input type="radio"/> Facility Group | --select-- |
| <input checked="" type="radio"/> Do Not Limit | |
| <input type="checkbox"/> PIN | --select-- |
| <input type="checkbox"/> District / Region | |
| <input checked="" type="checkbox"/> Missing Variables | Street Address1 City State Zip Code Phone |
| <input type="checkbox"/> Exclude Inactive Patients (Organization Status) | |

Cancel Reset Create Report



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Patient Data Quality Detail Report in ASIIS

MY VFC OFFICE

BADLOTNUM, TEST01 Date of Birth:09/16/2022

MISSING VALUES:Phone, Mother Maiden Name, Guardian First Name, Guardian Middle Name, Guardian Last Name, Patient Middle Name, Patient Medicaid Number, VFC Status, Patient SSN

BADLOTNUM, TEST02 Date of Birth:09/16/2022

MISSING VALUES:Phone, Mother Maiden Name, Guardian First Name, Guardian Middle Name, Guardian Last Name, Patient Middle Name, Patient Medicaid Number, VFC Status, Patient SSN

BADLOTNUM, TEST03 Date of Birth:09/16/2022

MISSING VALUES:Phone, Mother Maiden Name, Guardian First Name, Guardian Middle Name, Guardian Last Name, Patient Middle Name, Patient Medicaid Number, VFC Status, Patient SSN

BADLOTNUM, TEST04 Date of Birth:09/16/2022

MISSING VALUES:Phone, Mother Maiden Name, Guardian First Name, Guardian Middle Name, Guardian Last Name, Patient Middle Name, Patient Medicaid Number, VFC Status, Patient SSN

BADLOTNUM, TEST05 Date of Birth:09/16/2022

MISSING VALUES:Phone, Mother Maiden Name, Guardian First Name, Guardian Middle Name, Guardian Last Name, Patient Middle Name, Patient Medicaid Number, VFC Status, Patient SSN

BADLOTNUM, TEST06 Date of Birth:09/16/2022

MISSING VALUES:Phone, Mother Maiden Name, Guardian First Name, Guardian Middle Name, Guardian Last Name, Patient Middle Name, Patient Medicaid Number, VFC Status, Patient SSN

BADLOTNUM, TEST07 Date of Birth:09/16/2022

MISSING VALUES:Phone, Mother Maiden Name, Guardian First Name, Guardian Middle Name, Guardian Last Name, Patient Middle Name, Patient Medicaid Number, VFC Status, Patient SSN

BADLOTNUM, TEST08 Date of Birth:09/16/2022

MISSING VALUES:Phone, Mother Maiden Name, Guardian First Name, Guardian Middle Name, Guardian Last Name, Patient Middle Name, Patient Medicaid Number, VFC Status, Patient SSN

BADLOTNUM, TEST09 Date of Birth:09/16/2022

MISSING VALUES:Phone, Mother Maiden Name, Guardian First Name, Guardian Middle Name, Guardian Last Name, Patient Middle Name, Patient Medicaid Number, VFC Status, Patient SSN

BADLOTNUM, TEST10 Date of Birth:09/16/2022

MISSING VALUES:Phone, Mother Maiden Name, Guardian First Name, Guardian Middle Name, Guardian Last Name, Patient Middle Name, Patient Medicaid Number, VFC Status, Patient SSN

BADMVXCODE, TEST01 Date of Birth:09/16/2022

MISSING VALUES:Phone, Mother Maiden Name, Guardian First Name, Guardian Middle Name, Guardian Last Name, Patient Middle Name, Patient Medicaid Number, VFC Status, Patient SSN

BADMVXCODE, TEST02 Date of Birth:09/16/2022

MISSING VALUES:Phone, Mother Maiden Name, Guardian First Name, Guardian Middle Name, Guardian Last Name, Patient Middle Name, Patient Medicaid Number, VFC Status, Patient SSN

BADMVXCODE, TEST03 Date of Birth:09/16/2022

MISSING VALUES:Phone, Mother Maiden Name, Guardian First Name, Guardian Middle Name, Guardian Last Name, Patient Middle Name, Patient Medicaid Number, VFC Status, Patient SSN

BADMVXCODE, TEST04 Date of Birth:09/16/2022

MISSING VALUES:Phone, Mother Maiden Name, Guardian First Name, Guardian Middle Name, Guardian Last Name, Patient Middle Name, Patient Medicaid Number, VFC Status, Patient SSN

BADMVXCODE, TEST05 Date of Birth:09/16/2022

MISSING VALUES:Phone, Mother Maiden Name, Guardian First Name, Guardian Middle Name, Guardian Last Name, Patient Middle Name, Patient Medicaid Number, VFC Status, Patient SSN



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Vaccination Data Quality Report in ASIIS

| |
|---|
| Quality |
| Patient Data Quality Detail |
| Vaccination Data Quality |
| Vaccination Data Quality Detail |

Schedule

| Vaccination Data Quality Report | | | |
|--|------------------------------|---------------------|--|
| Display By | | | |
| <input checked="" type="checkbox"/> Vaccination Date Range | From: 01/01/2021 | Through: 03/13/2023 | |
| <input type="checkbox"/> Birth Date Range | From: | Through: | |
| <input checked="" type="radio"/> Organization | 0000 VOMS TRAINING (60137) | | |
| <input type="radio"/> Do Not Limit | | | |
| <input type="radio"/> Facility | --select-- | | |
| <input type="radio"/> Facility Group | --select-- | | |
| <input checked="" type="radio"/> Do Not Limit | | | |
| <input type="checkbox"/> PIN | --select-- | | |
| <input type="checkbox"/> District / Region | | | |
| <input type="checkbox"/> Exclude Inactive Patients (Organization Status) | | | |
| <div>Cancel Reset Create Report</div> | | | |

This report summarizes vaccinations outside of recommended administration age or administered vaccinations that were given from unspecified vaccine types.



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Vaccination Data Quality Report in ASIIS

Vaccination Data Quality Report March 14, 2023

This Vaccination Data Quality Report summarizes vaccinations outside of recommended administration age or administered vaccinations that were given from unspecified vaccine types.

Vaccination Date Range: 01/01/2021 through 03/13/2023

0000 VOMS TRAINING (X9999X)

MY VFC OFFICE (X0X0) [details](#)

| | |
|---|---|
| DTaP/DT/Td Minimum age for this dose not met. | 5 |
| HIB Minimum age for this dose not met. | 5 |
| HPV Minimum age for this dose not met. | 8 |
| POLIO Minimum age for this dose not met. | 5 |



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Vaccination Data Quality Detail Report in ASIIS

Quality

[Patient Data Quality Detail](#)

[Vaccination Data Quality](#)

[Vaccination Data Quality Detail](#)

[Schedule](#)

Vaccination Data Quality Detail Report

Display By

| | | |
|--|------------------------------|---------------------|
| <input checked="" type="checkbox"/> Vaccination Date Range | From: 01/01/2021 | Through: 03/13/2023 |
| <input type="checkbox"/> Birth Date Range | From: | Through: |
| <input type="radio"/> Organization | 0000 VOMS TRAINING (60137) | |
| <input type="radio"/> Do Not Limit | | |
| <input type="radio"/> Facility | --select-- | |
| <input type="radio"/> Facility Group | --select-- | |
| <input checked="" type="radio"/> Do Not Limit | | |
| <input type="checkbox"/> PIN | --select-- | |
| <input type="checkbox"/> District / Region | | |
| <input type="checkbox"/> Exclude Inactive Patients (Organization Status) | | |
| <input type="checkbox"/> Display By | --select-- | |

[Cancel](#) [Reset](#) [Create Report](#)

This report identifies patient and vaccination records that were outside of the administration age, or administered vaccinations that were given from unspecified vaccine types.



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Vaccination Data Quality Detail Report in ASIIS

Vaccination Data Quality Detail Report March 14, 2023

This Vaccination Data Quality Detail Report is used to enable identification of the patient and vaccination records which were outside of the administration age or administered vaccinations that were given from unspecified vaccine types.

*Denotes an orphaned vaccination record. This ID is the patient's Medical Record Number as was imported with this vaccination by the registry. There is no associated patient record in the registry and, therefore, no SIIS Patient Number has been generated.

Vaccination Date Range: 01/01/2021 through 03/13/2023

| Organization | SIIS Patient | Patient Name | Patient DOB | Vaccine Group | Issue | Vacc Date |
|---------------|--------------|--------------------|-------------|-------------------|------------------------------------|------------|
| MY VFC OFFICE | | | | | | |
| 60137 | 9795570 | BADMVXCODE, TEST01 | 09/16/2022 | DTaP,IPV,Hib,HepB | Minimum age for this dose not met. | 09/16/2022 |
| 60137 | 9795570 | BADMVXCODE, TEST01 | 09/16/2022 | DTaP,IPV,Hib,HepB | Minimum age for this dose not met. | 09/16/2022 |
| 60137 | 9795570 | BADMVXCODE, TEST01 | 09/16/2022 | DTaP,IPV,Hib,HepB | Minimum age for this dose not met. | 09/16/2022 |
| 60137 | 9795572 | BADMVXCODE, TEST02 | 09/16/2022 | DTaP,IPV,Hib,HepB | Minimum age for this dose not met. | 09/16/2022 |
| 60137 | 9795572 | BADMVXCODE, TEST02 | 09/16/2022 | DTaP,IPV,Hib,HepB | Minimum age for this dose not met. | 09/16/2022 |
| 60137 | 9795572 | BADMVXCODE, TEST02 | 09/16/2022 | DTaP,IPV,Hib,HepB | Minimum age for this dose not met. | 09/16/2022 |



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Activity

- Discuss with those around you ideas you learned today and how you will implement them in your office



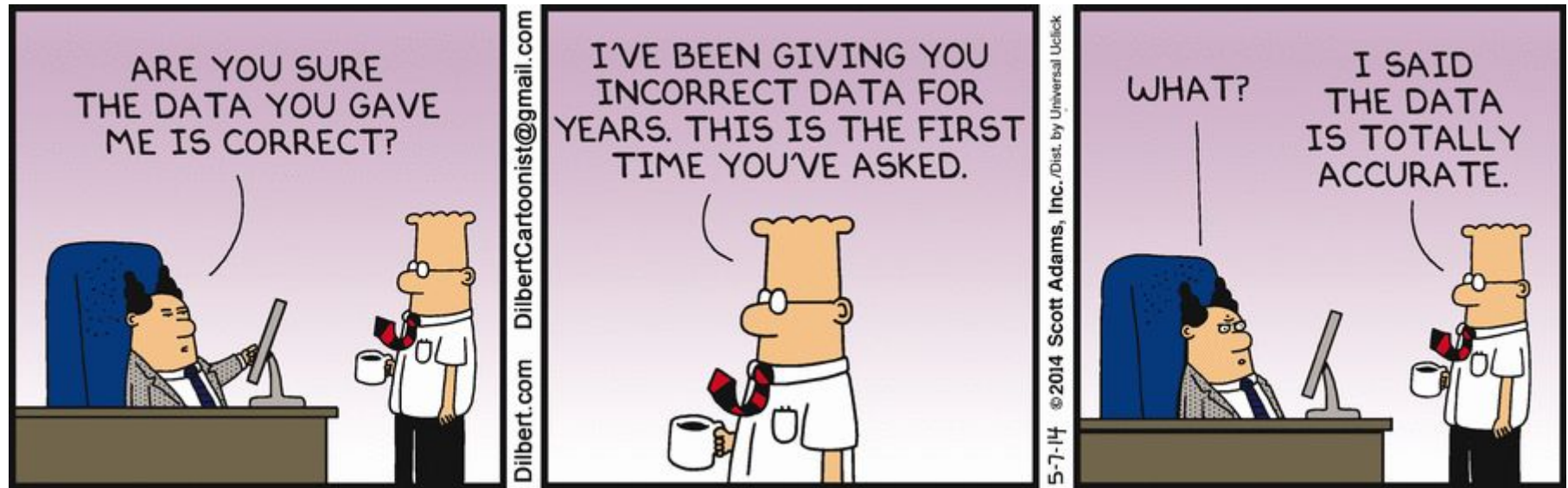
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***It is imppssible for the
Registry datasabe software to
regocnize spilling mestakes.***



Data Quality



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Questions?



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THANK YOU

Amanda Lusk | Immunization Data Quality Manager

Amanda.Lusk@azdhs.gov | 480-787-1494

ASIIS_Data_Quality@azdhs.gov

azhealth.gov



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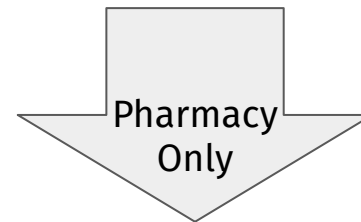
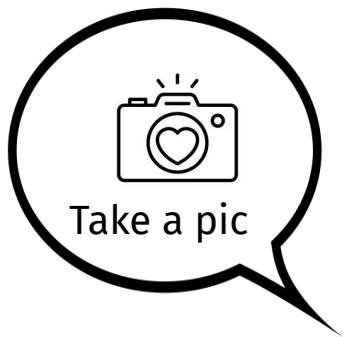
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Continuing Education Credits 4/19/23



<https://www.surveymonkey.com/r/NXT25KL>

- Follow the QR code/Link to receive CEs for this session
- Select this session from the drop down menu.
- Update sessions you attended throughout the day.
- Go to conference app or program for more information.

Pharmacist CE claim form: 2023
Annual ADHS Arizona
Immunization Conference



<https://forms.office.com/r/dCVCcNUW2F>